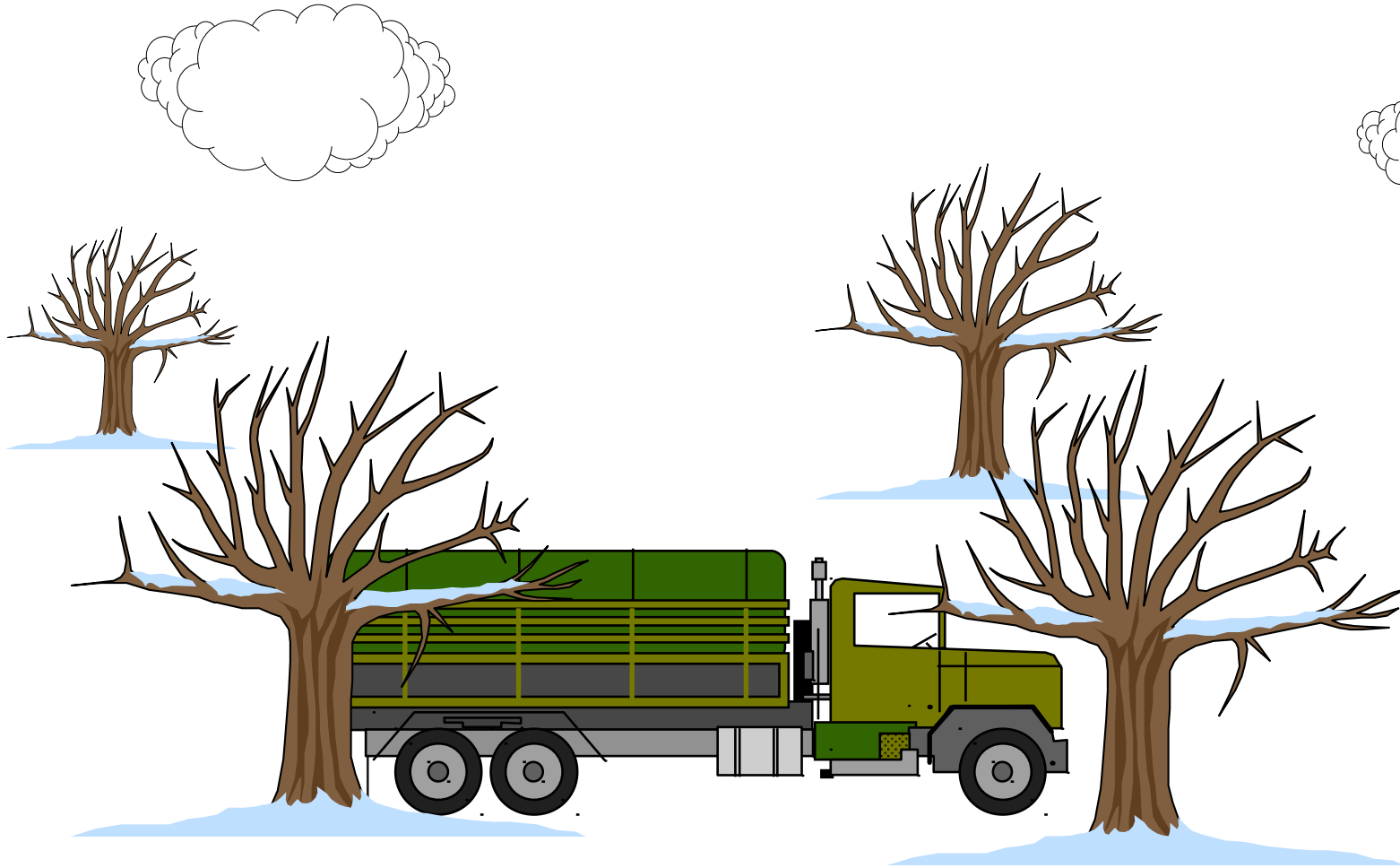
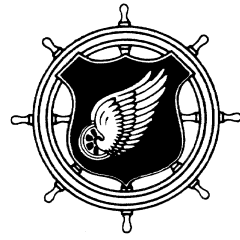


# **DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY**

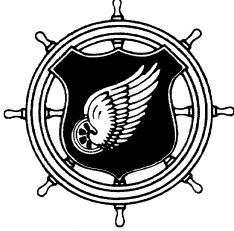


# Objective

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Drive cargo vehicle on side and unimproved roads in con  
Given a classroom environment, FM21-305, a loaded 5-to  
vehicle technical manual, and an approved convoy route  
road course during daylight hours. You must safely oper  
cargo vehicle in convoy on/off roadway during day or nig  
You must perform all required maneuvers on/off roadway  
daylight hours without causing personal injury or damag  
equipment IAW FM 21-305 and vehicle technical manual



# **DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY**

## **Drive Vehicle in Convoy**

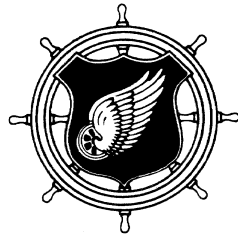
Start the engine on receiving the signal or order from the march unit commander.

- Set the vehicle in motion on receiving signal of order to move out.
- Operate the vehicle at the prescribed speed and with in the proper interval between vehicle.
- Acknowledge the hand signals by adjusting speed, interval, and position accordingly.
- Relay the signals received from the march commander.



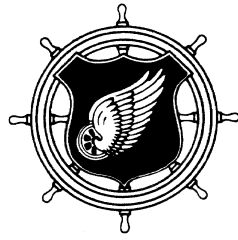
## **Vehicle Failures**

- Signal a stop and pull vehicle behind you to proceed.
- Correct trouble, if possible, and fall back in column at one of the halts. If trouble cannot be repaired, wait for the trail officer who is positioned at the rear of the column.



## **Vehicle Halts.**

- Rest and relief
- Refueling
- Maintenance
- Inspect vehicle and loads



## **NATO Convoy Flags**

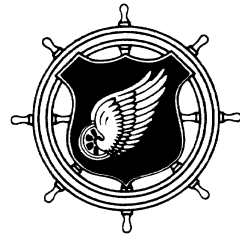
Blue-lead vehicle.

Green-last vehicle.

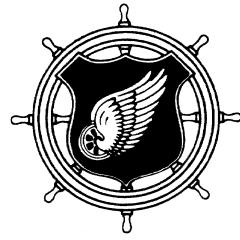
White and black diagonal-vehicle of  
column commander

# **DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY**

## **Command and Control Communi**



- Visual signals (involve hand and arm signals, flashlights, flags, headlight, and pyrotechnic signals).
- Sound signals (whistles, horns, and verbal messages).
- Radio is the best way to communicate during a road march

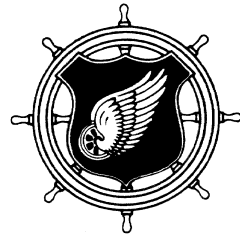


# **DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY**

## **Operate Central Tire Inflation System (CTIS) on M939A2 series vehicle.**

- Selector panel
- Highway(HWY)
- Cross-country (X-C)
- Sand
- Emergency(EMER)
- Run-flat
- Amber warning light
- Electronic control Unit (ECU)





# **DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY**

## **Operate Central Inflation System on M939A2 series vehicle.**

CTIS integration with air brake system

- Start the engine

The CTIS will automatically go to the highway mode when the vehicle is started

- Place the vehicle in motion

- depress the cross-country mode (X-C) button

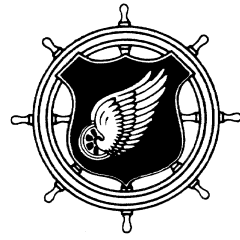
- depress the emergency mode button

- depress the flat-mode button

drive Vehicle on side roads and

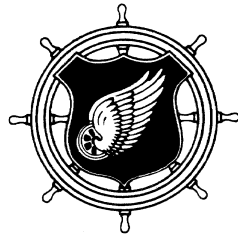
# **DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY**

## **Operate Central Tire Inflation System on M939A2 series vehicle.**

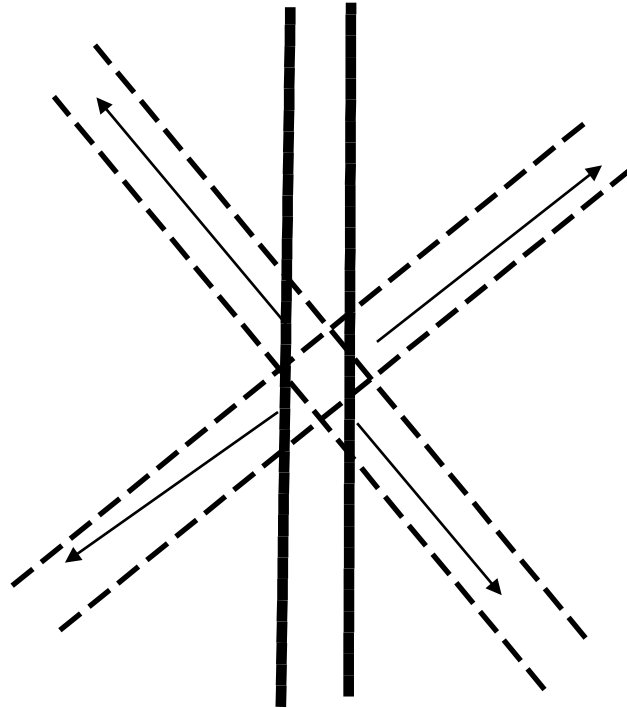


Transmission driving range selection.

- “R” (reverse) easy grades clear of traffic with ground
- “N” (neutral)
- “1-5” (drive) Good roads, grades, traffic conditions.
- “1-4” (fourth) Moderate grades, heavy traffic, restricted speed limits.
- “1-3”(third) Moderate grades, heavy traffic, restricted speed limits.
- “1-2” (second) Steep grades, heavy traffic, rough terrain.
- “1” (first) Starting heavy loads, extreme grades, rough terrain.



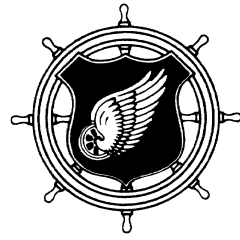
## **Shallow Ditches**



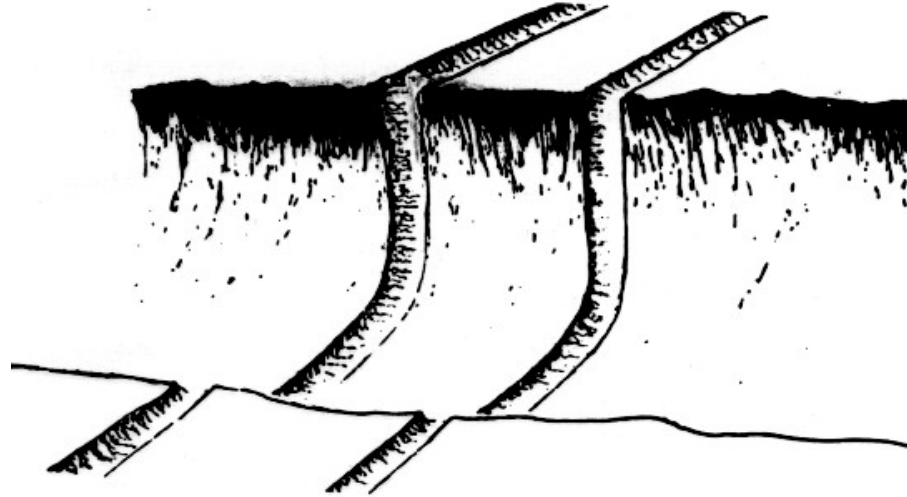
Transfer case shift lever to LO

Select 1st or 2nd gear

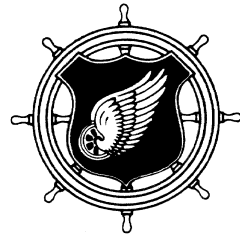
Approach slowly at oblique angle (45 degrees)



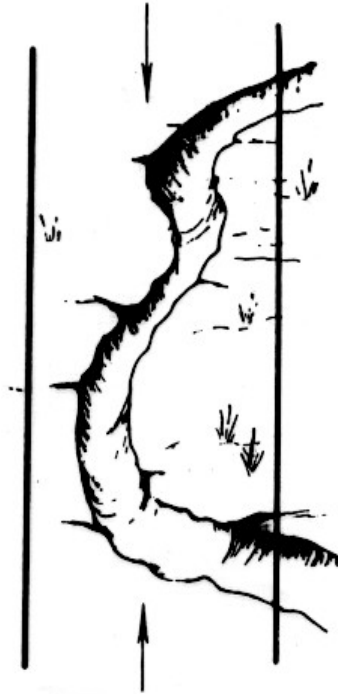
## Deep Ditches



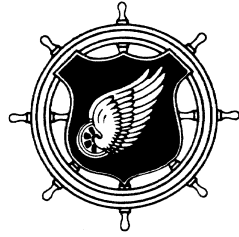
- Stop, check sides of bank for steepness
- Cut away at tops of banks
- Transfer case shift lever to LO, or four-wheel drive.
- Place the vehicle into the lowest forward gear and four-wheel drive.
- Approach at an angle.
- Accelerate the vehicle enough to keep it rolling as it goes up the other side



## Gullies and Ravines



- Look carefully, examine both banks
- If water is in ravine, check the depth
- Set transfer case shift lever to LO



## **Gullies and Ravines**

Place transmission in 1st gear

Slowly enter at right angle to edge

Ease front wheels into gully using foot brake

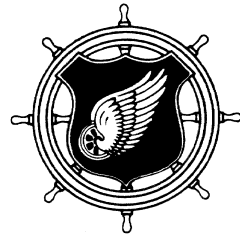
Ensure front wheels strike the bottom at the same time

Accelerate as wheels hit the bottom



## **Wooded Areas**

- Avoid stumps
- Watch for low hanging limbs
- Leaves can be slick
- Spare tire
- Pull in and adjust mirrors
- Use established trails
- Center vehicle on larger saplings
- Dense forest - drive close to edge  
(concealment)



## **Rocky Terrain**

- Check ground clearance
- Avoid large rocks
- Rocks can be slick when wet
- Have a good spare tire
- Use inter-axle differential lock
- Move very slowly





## **Streams**

Check depth and bottom of fording site

Set transfer to low range and traction control to differential lock

Enter slowly, 1st gear, accelerate to 3-4 mph

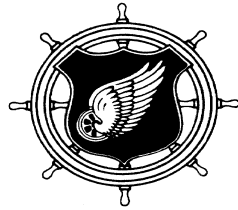
Do not stop in water

Dry brakes with light pressure on brake pedal

After dry, stop, apply and release park brake

Remove water and clean deposits from parts

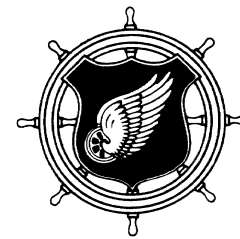
Deliver vehicle to organizational maintenance



## **Swamps and Mud**

- Low range; traction control to differential lock
- Use 1st or 2nd gear
- In deep ruts, keep wheels straight
- When necessary, use boards and brush for add
- If mud rolls up in front of tires, stop, back up and drive forward at a faster speed
- Wash out the brakes as soon as possible

# **DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY**



## **Sandy or Dusty Areas**

Reduce tire pressure

Drive at slow speed

When starting on sand or soft ground;

start in 2nd or 3rd gear, accelerate gradually

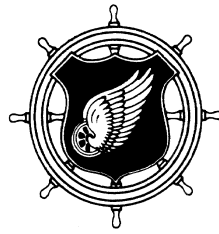
maintain steady movement and avoid unnecessary

shifting of gears

Anticipate and bypass difficult spots

Hit small stretches of soft sand at increased speed

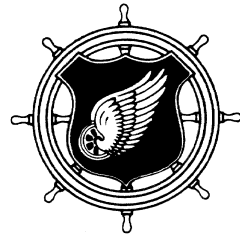
Approach dunes at 90 degree angle



**Sandy or Dusty Areas continued**

- Follow tracks of preceding vehicle; extend distance and operate at low speed
- Watch air filter restriction indicator, gauges, and warning lights
- At stops, check and drain fuel-water separator
- Roll to a halt or brake gradually
- Park vehicle so it does not face into the wind
- Cover glass surfaces

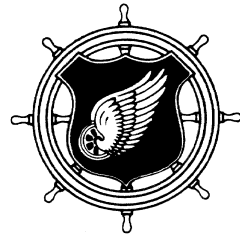
**DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY**



## **Parking Vehicle**

**Do not park vehicle on steep gr**

# DRIVE A CARGO VEHICLE ON/OFF ROAD IN CONVOY



## Maintenance

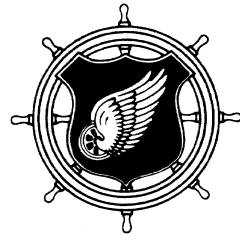
Clean mud off vehicle as soon as possible after off road

Do not hit axle breathers when cleaning

Clean mud from wheels, brakes, axles, universal steering mechanism, and radiator

Make sure axle breather vent caps move freely on body

**CAUTION: Do not direct high pressure water at any that could easily be damaged**



## **Snow and Ice**

Snow and ice reduces traction even more than w

When on snow and ice, have chains or snow tires

When roads are dangerous due to weather, drive

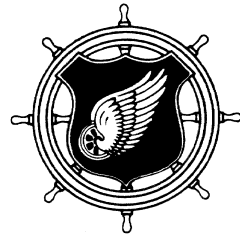
alertness and reduce speed according to conditio

When road appears clear, watch for patches of ic

Decks of bridges cool much more rapidly than ro

Danger times are late afternoon, or after dark

Three to eleven times greater distance is require



## **Night Driving**

Two to three times more dangerous

Night vision reduced to a few hundred feet

Reflected light:

100 ft.  $\frac{1}{4}$  as much light as objects 50 ft

200 ft.  $\frac{1}{16}$  as much light reflected

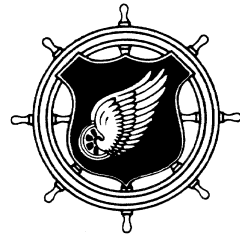
Hills and curves reduce vision greatly

Glare from headlights

Clean windshield

Twilight hours especially hazardous





## **Operate Lights**

Turn dome light on/off

Turn panel lights on/off

Turn parking lights on/off

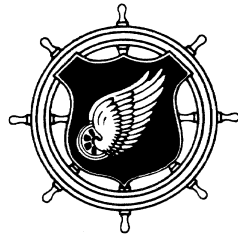
Turn services lights on/off

Turn stoplights on/off

Turn clearance lights on/off

# Summary

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Controls and Indicators

Off-Road operation

Convoy operations

Maintenance of vehicle

Night driving

Operation of lights